



**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA**  
Kakinada-533003, Andhra Pradesh (India)

**Comparison of Program Structure R19 with R20**

Program Code	Program Name	Total No. of Courses		No of Subjects			Total Courses	Percentage %
		R19	R20	Added in (R20)	Deleted (R19)	Content revised more than 20%		
021A01	B.Tech – Civil Engineering	87	82	7	13	2	22	27

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# JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

Kakinada-533003, Andhra Pradesh (India)

## Comparison of Course Structure R19 with R20

Program Code: 021A01

Program Name: B.Tech – Civil Engineering

Year : 1

Semester: 1

R19						R20						Remarks		
Course code	Course name	L	T	P	C	Course code	Course name	L	T	P	C	New Course ? (R20)	Deleted Course? (R19)	Content Revision %
BS1101	Mathematics – I	3	0	0	3	BS1101	Mathematics– I(Calculus&Differential Equations	3	0	0	3			
HS1101	Communicative English	3	0	0	3	HS1101	Communicative English	3	0	0	3			
BS1102	Engineering Chemistry	3	0	0	3	BS1102	EngineeringPhysics	3	0	0	3			50
ES1101	Essentials of Electrical and Electronics Engineering	3	1	0	3	ES1101	Building Materials and Construction	1	0	4	3		Yes	
ES1102	Engineering Graphics	1	0	3	2.5	ES1102	EngineeringGraphics	2	0	2	3			
HS1102	English Communication Skills Lab - I	0	0	3	1.5	HS1102	English Communication SkillsLab	0	0	3	1.5			
BS1103	Engineering Chemistry Lab	0	0	3	1.5	BS1103	EngineeringPhysicsLab	0	0	3	1.5			47
ES1103	Workshop Practice	0	0	3	1.5	ES1103	BasicsofCivilEngg.Workshop (Lab)	0	0	3	1.5			
ES1104	Essentials of Electrical & Electronics Engineering Lab	0	0	2	1	MC1101	Constitution of India	2	0	0	0		Yes	

MC1101	Environmental Science	3	0	0	0								
MC1102	Physical Fitness Activities	3	0	0	0								
<b>Total Credits</b>					19. 5	<b>Total Credits</b>					19.5		

## Comparison of Course Structure R19 with R20

Program Code: 021A01

Program Name: B.Tech–Civil Engineering

Year : 1

Semester: 2

R19						R20						Remarks		
Course code	Course name	L	T	P	C	Course code	Course name	L	T	P	C	New Course ? (R20)	Deleted Course ? (R19)	Content Revision %
BS1201	Mathematics - II	3	0	0	3	BS1201	Mathematics–II(LinearAlgebra& NumericalMethods)	3	0	0	3			
BS1202	Mathematics – III	3	0	0	3	ES1201	Surveying	3	0	0	3			
BS1203	Applied/ Engineering Physics	3	0	0	3	BS1202	EngineeringChemistry	3	0	0	3			
ES1201	Problem Solving& Programming Using C	3	0	0	3	ES1202	ProgrammingforProblemSolvingUsing C	3	0	0	3			
ES1202	Engineering Mechanics	3	0	0	3	ES1203	EngineeringMechanics	3	0	0	3			
BS1204	Applied/ Engineering Physics Lab	0	0	3	1.5	BS1203	EngineeringChemistryLab	0	0	3	1.5			6
HS1201	English Communication Skills Lab - II	0	0	3	1.5	ES1204	Surveying Field Work 1	0	0	3	1.5		Yes	

BS1205	Physic Virtual Lab	0	0	2	0	ES1205	ProgrammingforproblemSolvingUsing C Lab	0	0	3	1.5			
ES1203	Problem Solving & Programming using C Lab	0	0	3	1.5	MC1201	EnvironmentalScience	3	0	0	0			
PR1201	Engineering Exploration Project & Design Thinking (15hrs per sem)	3	0	0	0.5	BS1204	Physics Virtual Lab	0	0	2	0		Yes	
MC1201	Constitution of India	3	0	0	0	MC1202	Physical Fitness Activities	0	0	3	0			
	<b>Total Credits</b>				20		<b>Total Credits</b>				19.5			

## Comparison of Course Structure R19 with R20

Program Code: 021A01

Program Name: B.Tech–Civi Engineering

Year : 2

Semester: 3

R19					R20					Remarks						
Course code	Course name	L	T	P	C	Course code	Course name	L	T	P	C	New Course? (R20)	Deleted Course? (R19)	Content Revision %		
BS2101	Probability and Statistics/ M4	3	0	0	3	BS2101	Mathematics - III	3	0	0	3					
PC2102	Fluid Mechanics	3	0	0	3	PC2101	Strength of Materials	3	0	0	3					
ES2101	Surveying	3	0	0	3	PC2102	Fluid Mechanics	3	0	0	3					
ES2102	Engineering Geology	3	0	0	3	PC2103	Structural Analysis - I	3	0	0	3					
PC2103	Building Materials and Construction	3	0	0	3	PC2104	Concrete Technology	3	0	0	3					
PC2104	Strength of Materials Lab	0	0	3	1.5	PC2105	Strength of Materials Lab	0	0	3	1.5					
ES2103	Surveying Field Work – I	0	0	3	1.5	PC2106	Building Planning & Drawing	0	0	3	1.5					
ES2104	Engineering Geology Lab	0	0	3	1.5	PC2107	Concrete Technology Lab	0	0	3	1.5					
PC2101	Strength of Materials	3	0	0	3	SC2101	Skill oriented course (Computer Aided Drawing LAB)	1	0	2	2	Yes				
<b>Total Credits</b>											22.5	<b>Total Credits</b>				
											21.5					

## Comparison of Course Structure R19 with R20

Program Code: 021A01

Program Name: B.Tech–Civil Engineering

Year : 2

Semester: 4

R19						R20						Remarks		
Course code	Course name	L	T	P	C	Course code	Course name	L	T	P	C	New Course ? (R20)	Deleted Course? (R19)	Content Revision %
PC2201	Transportation Engineering - I	3	0	0	3	BS2201	Probability and Statistics/ (M-IV)	3	0	0	3			
PC2202	Hydraulics and Hydraulic Machinery	3	0	0	3	PC2201	Structural Analysis - II	3	0	0	3			
ES2201	Structural Analysis - I	3	0	0	3	PC2202	Hydraulics and Hydraulic Machinery	3	0	0	3			
PC2203	Building Planning and Drawing	3	0	0	2	ES2201	Engineering Geology	3	0	0	3			
PC2204	Concrete Technology	3	0	0	2	HS2201	Managerial Economics and Financial Analysis	3	0	0	3			
PC2205	Managerial Economics and Financial Analysis	0	0	2	3	PC2203	Surveying Field Work - II	0	0	2	1			
ES2202	Surveying Field work - II	0	0	3	1.5	ES2202	Engineering Geology Lab	0	0	3	1.5			
PC2206	Fluid Mechanics Lab	0	0	3s	1.5	PC2204	Fluid Mechanics & Hydraulics Machinery lab	0	0	3	1.5			
MC2201	Socially Relevant Projects	0	0	1	0.5	SC2201	Skill Oriented Course*	2	0	0	0	Yes	Yes	

MC2202	Essence of Indian Traditional Knowledge/Professional Ethics and Human Values	2	0	0	0		Honors/ Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)	3	0	2	4	Yes	Yes			
<b>Total Credits</b>								19.5	<b>Total Credits</b>							



## Comparison of Course Structure R19 with R20

Program Code: 021A01

Program Name: B.Tech – CIVIL ENGINEERING

Year : 3

Semester: 5

		R19								R20					Remarks		
Course code	Category	Course name	L	T	P	C	Course code	Category	Course name	L	T	P	C	New Course? (R20)	Deleted Course? (R19)	Content Revision %	
PC3101	CORE	Structural Analysis - II	3	0	0	3	PC3101	CORE	Design of Reinforced Concrete Structures	3	0	0	3				
PC3102	CORE	Design of Reinforced Concrete Structures	2	0	0	3	PC3102	CORE	Geotechnical Engineering - I	3	0	0	3				
PC3103	CORE	Environmental Engineering - I	3	0	0	3	PC3103	CORE	Transportation Engineering - I	3	0	0	3				
PC3104	CORE	Geotechnical Engineering - I	3	0	0	3	PE3101 (PE-I)	CORE	Construction Technology & Management	3	0	0	3				
PC3105	CORE	Water Resources Engineering - I	3	0	0	3	PC3104	LAB	Geotechnical Engineering Lab	0	0	3	1.5				
PC3106	LAB	Geotechnical Engineering Lab	3	0	0	1.5	PC3105	LAB	Transportation Engineering Lab	0	0	3	1.5				

PC3107	LAB	Concrete Technology Lab	0	0	3	1.5	OE3101	Open Elective I	a)Disaster Management	3	0	0	3			
									b)Environmental Pollution & Control							
									c)Elements of Civil Engineering							
									d)Green Technology							
									e)Smart Cities							
									f)Project Management							
									g)Traffic Safety							
									h)Wastewater Treatment							
PC3108	LAB	Hydraulic Machinery Lab	0	0	3	1.5	SS3101	LAB	Skill advanced course/ soft skills course* (Total Station & GPS)	1	0	2	1.5	Yes		
MC3101	LAB	Socially Relevant Projects	0	0	1	0.5	SI3101	Internship	Summer Internship				1.5		Yes	
		<b>Total Credits</b>				20			<b>Total Credits</b>				21.5			

## Comparison of Course Structure R19 with R20

Program Code: 021A01

Program Name: B.Tech - CIVIL ENGINEERING

Year : 3

Semester: 6

R19							R20							Remarks		
Course code	Category	Course name	L	T	P	C	Course code	Category	Course name	L	T	P	C	New Course? (R20)	Deleted Course? (R19)	Content Revision %
PC3201	Core	Design of Steel Structures	3	0	0	3	PC3201	Core	Design of Steel Structures	3	0	0	3			
PC3202	Core	Geotechnical Engineering – II	3	0	0	3	PC3202	Core	Water Resources Engineering – I	3	0	0	3			
PC3203	Core	Transportation Engineering - II	3	0	0	3	PC3203	Core	Geotechnical Engineering - II	3	0	0	3		Yes	
PE3201 (PE-I)	Core	Construction Technology & Management	3	0	0	3	PC3203	Core	Environmental Engineering	3	0	0	3			20(reduced)
PC3204	Core	Environmental Engineering – II	3	0	0	3	PE3201 (PE-II)	Core	Estimation Specification & Contracts	3	0	0	3		Yes	
OE3201	Open Elective I	Disaster Management	3	0	0	3	OE3201 (OE-II)	Open Elective – II	Disaster Management	3	0	0	3			
		Environmental Pollution							Environmental Pollution							

		&Control								&Control							
		Elements Of Civil Engineering								Elements Of Civil Engineering							
		Green Technology								Green Technology							
		Smart Cities								Smart Cities							
		Project Management								Project Management							
		Traffic Safety								Traffic Safety							
		Wastewater Treatment								Wastewater Treatment							
PC3205	Lab	Environmental Engineering Lab	0	0	3	1.5	PC3204	Lab	Environmental Engineering Lab	0	0	3	1.5				
PC3206	Lab	Transportation Engineering Lab	0	0	3	1.5	SS3201	Lab	Skill Advanced Course/ soft skill course*	1	0	2	2	Yes			
PR3201	Lab	Indian Traditional Knowledge/ Research Methodology/ Professional Ethics and Human Values	2	0	0	0	MC3201		Mandatory Course	0	0	0	0		Yes		

						RI3201	INTERNSHIP	Industrial/ Research Internship (Mandatory 2 months)	0	0	0	0			
		<b>Total Credits</b>			21			<b>Total Credits</b>				21.5			

## Comparison of Course Structure R19 with R20

Program Code: 021A01

Program Name: B.Tech – CIVIL ENGINEERING

Year : 4

Semester: 7

R19							R20							Remarks		
Course code	Category	Course name	L	T	P	C	Course code	Category	Course name	L	T	P	C	New Course? (R20)	Deleted Course? (R19)	Content Revision %
PC4101	CORE	Water Resources Engineering - II	3	0	0	3	PE4102 (PE-IV)	CORE	Water Resources Engineering - II	3	0	0	3			
PE4101 (PE-II)	CORE	Estimation Specifications and Contracts	3	0	0	3	OE4101 (OE-III)	CORE	Remote Sensing & GIS	3	0	0	3			
PE4102 (PE-III)	CORE	Remote Sensing & GIS	3	0	0	3	OE4102(OW-III)	CORE	Waste Water Treatment	3	0	0	3			
PE4103 (PE-IV)	CORE	Ground Improvement Techniques	3	0	0	3	HS4101 (HS4101)	CORE	IPR & Patents	3	0	0	3	Yes	Yes	
OE4101	Open Elective – II	DISASTER MANAGEMENT	3	0	0	3	PE4101 (PE-III)	CORE	Pre-stressed Concrete	3	0	0	3			
		ENVIRONMENTAL POLLUTION AND CONTROL														
		ELEMENTS OF CIVIL ENGINEERING														
		GREEN														

		TECHNOLOGY														
		SMART CITIES														
		PROJECT MANAGEMENT														
		TRAFFIC STUDY														
		GEO-SPACIAL TECHNOLOGIES														
		WASTE WATER TREATMENT														
PC4102	LAB	GIS & CAD Lab	0	0	3	1.5	PE4104	LAB	Remote Sensing & GIS Lab	0	0	3	1.5			
PC4103	PE	Design & Drawing of Concrete Structures and Steel Structures	0	0	3	1.5	PE4103 (PE-V)	CORE	Design and Drawing of Irrigation Structures	0	0	3	1.5		Yes	
PR4101	INTERNSHIP	Industrial Training/Skill Development Programs/Research Project	0	0	3	1	RI4101	INTERNSHIP	Industrial/Research Internship	0	0	0	3			
		Project Work Phase-I	0	0	0	2	SS4101		Soft Skills	1	0	2	2	Yes		
		<b>Total Credits</b>				21			<b>Total Credits</b>				23			

## Comparison of Course Structure R19 with R20

Program Code: 021A01

Program Name: B.Tech – CIVIL ENGINEERING

Year : 4

Semester: 8

R19							R20							Remarks		
Course code	Category	Course name	L	T	P	C	Course code	Category	Course name	L	T	P	C	New Course? (R20)	Deleted Course? (R19)	Content Revision %
PE4201 (PE-V)	Core	Design and Drawing of Irrigation Structures	3	0	0	3	PROJ	PROJECT	Project, Project Work, Seminar & Internship In Industry	0	0	0	12			
PE4202 (PE-VI)	Core	Bridge Engineering	3	0	0	3									Yes	
PE4203 (PE-VII)	Core	Pre-stressed Concrete	3	0	0	3										
PR4201	PROJECT	Project Work Phase-II	0	0	16	8										
		<b>Total Credits</b>				17			<b>Total Credits</b>				12			